

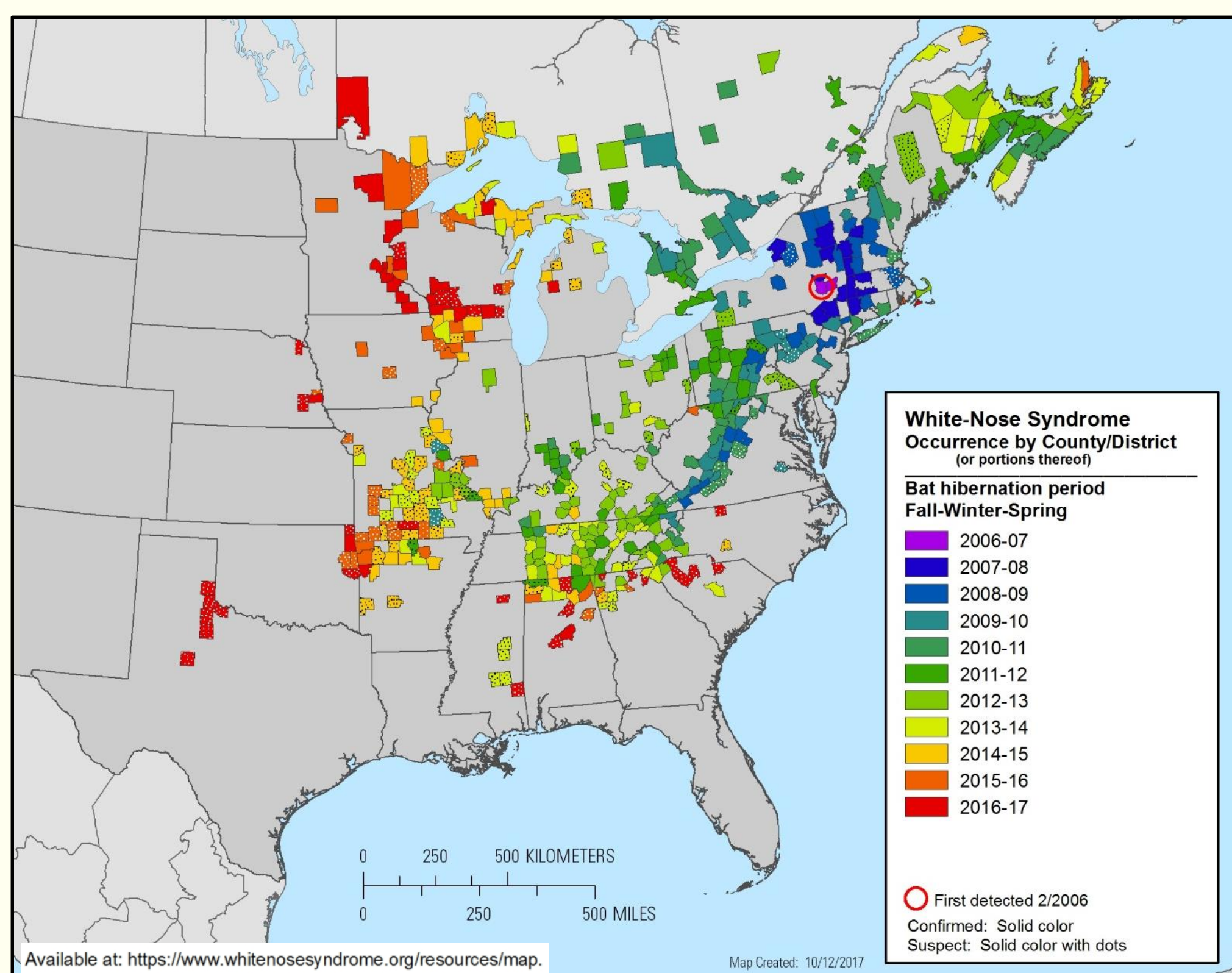
Long-term research elucidates the spatial relationships between imperiled bats & local fire management practices in the wake of White-nose Syndrome



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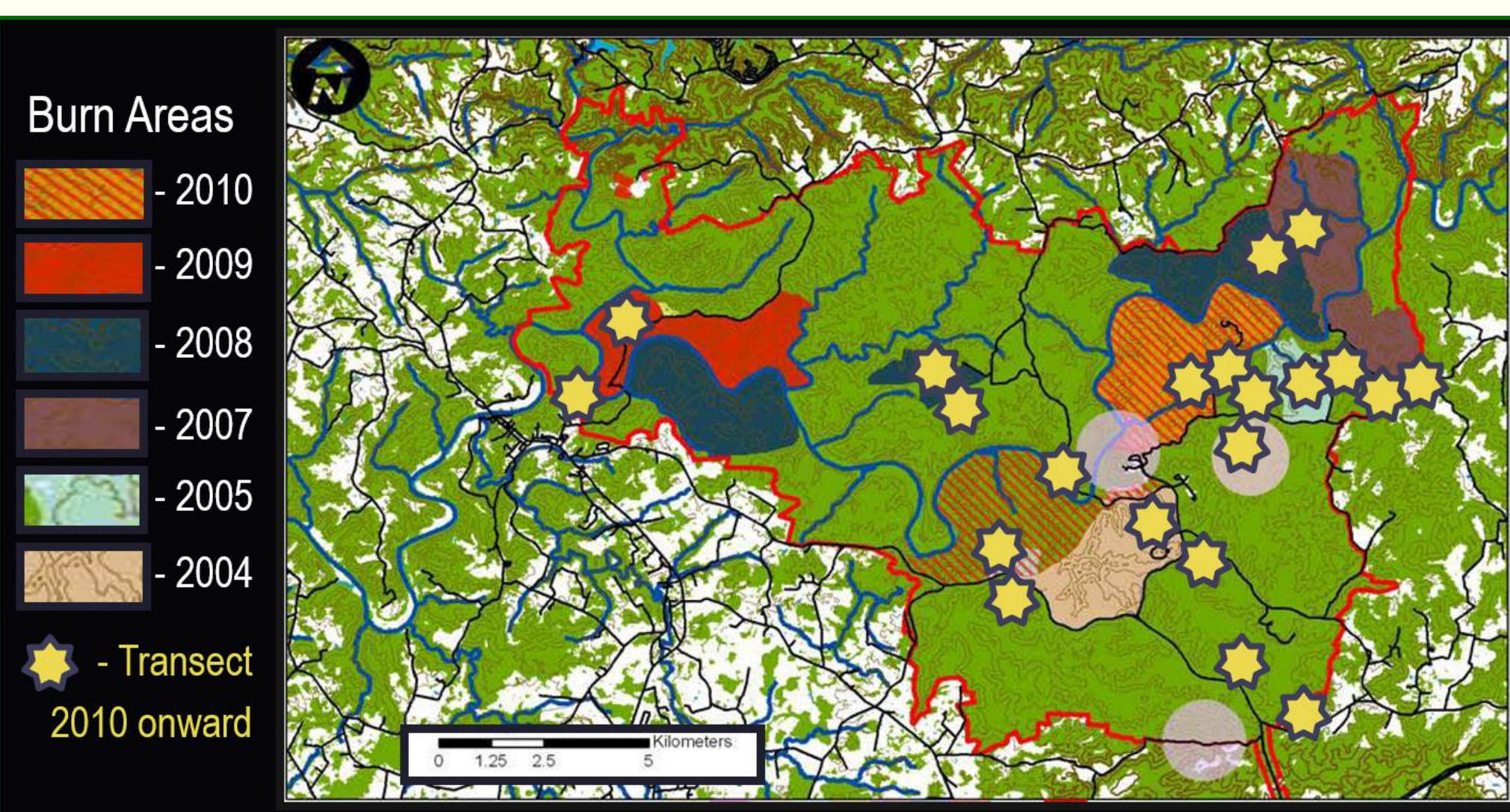
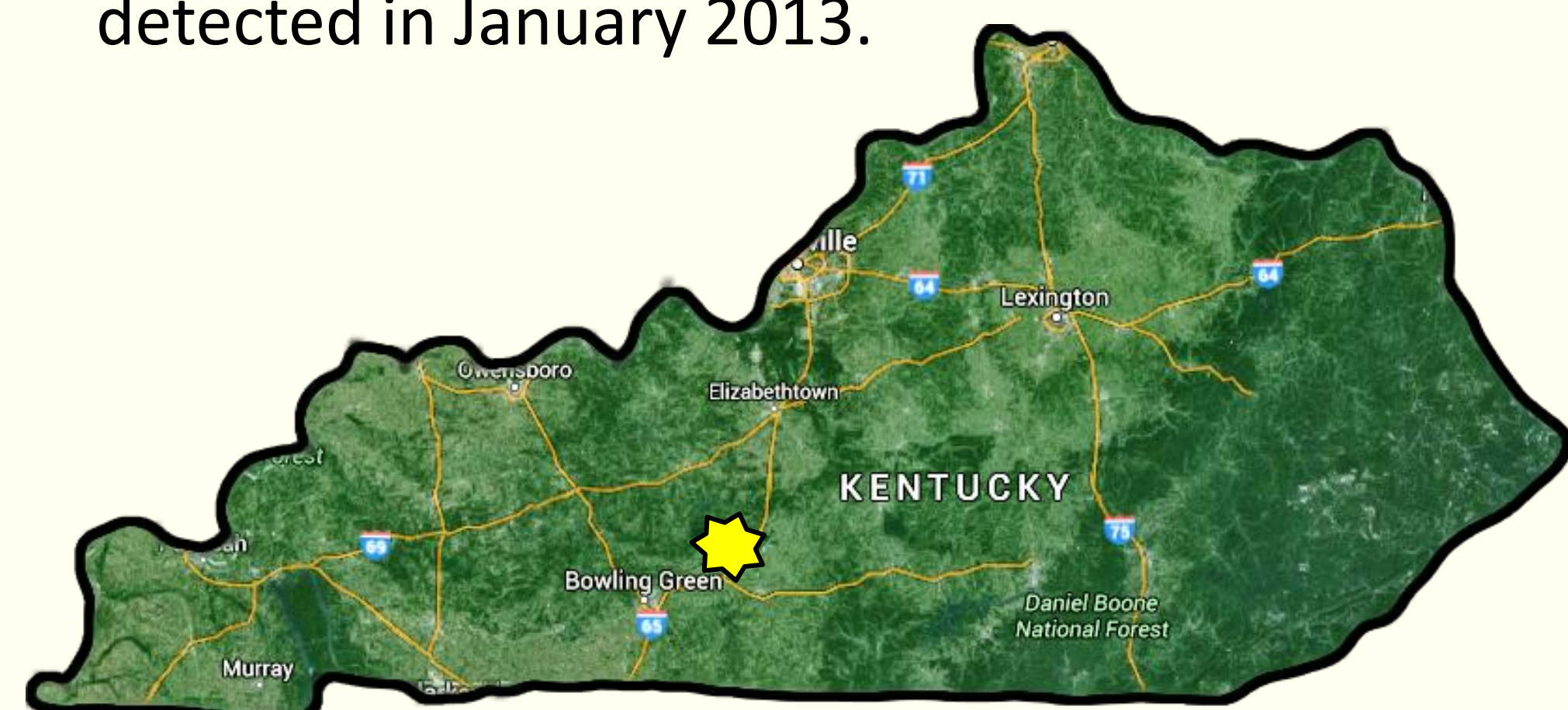
Introduction

- Insectivorous bats are important predators; studies suggest bats exert top-down pressure on insect prey communities & the ecosystem services of bats total billions of dollars.
- White-nose Syndrome (WNS) is an emergent disease responsible for the deaths of millions of bats across eastern North America. WNS has destabilized ecosystem community structure & relaxed niche partitioning.
- More than ever, effective management is needed for bat populations found across the fragmented forestlands of eastern North America.

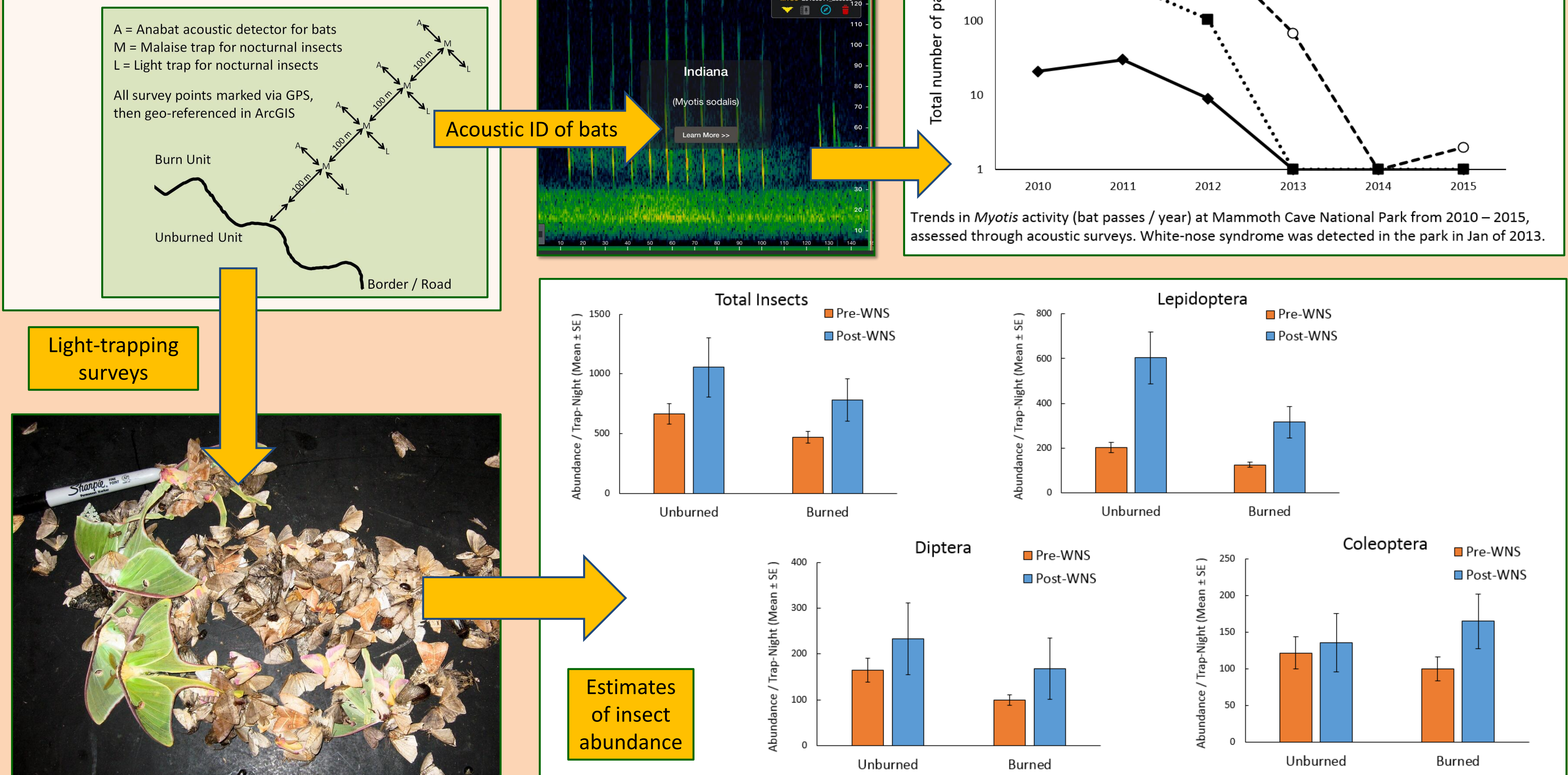


Objectives & Study Design

- We have elucidated the multi-trophic impacts of WNS in a fire-managed landscape.
- Mammoth Cave National Park; WNS first detected in January 2013.

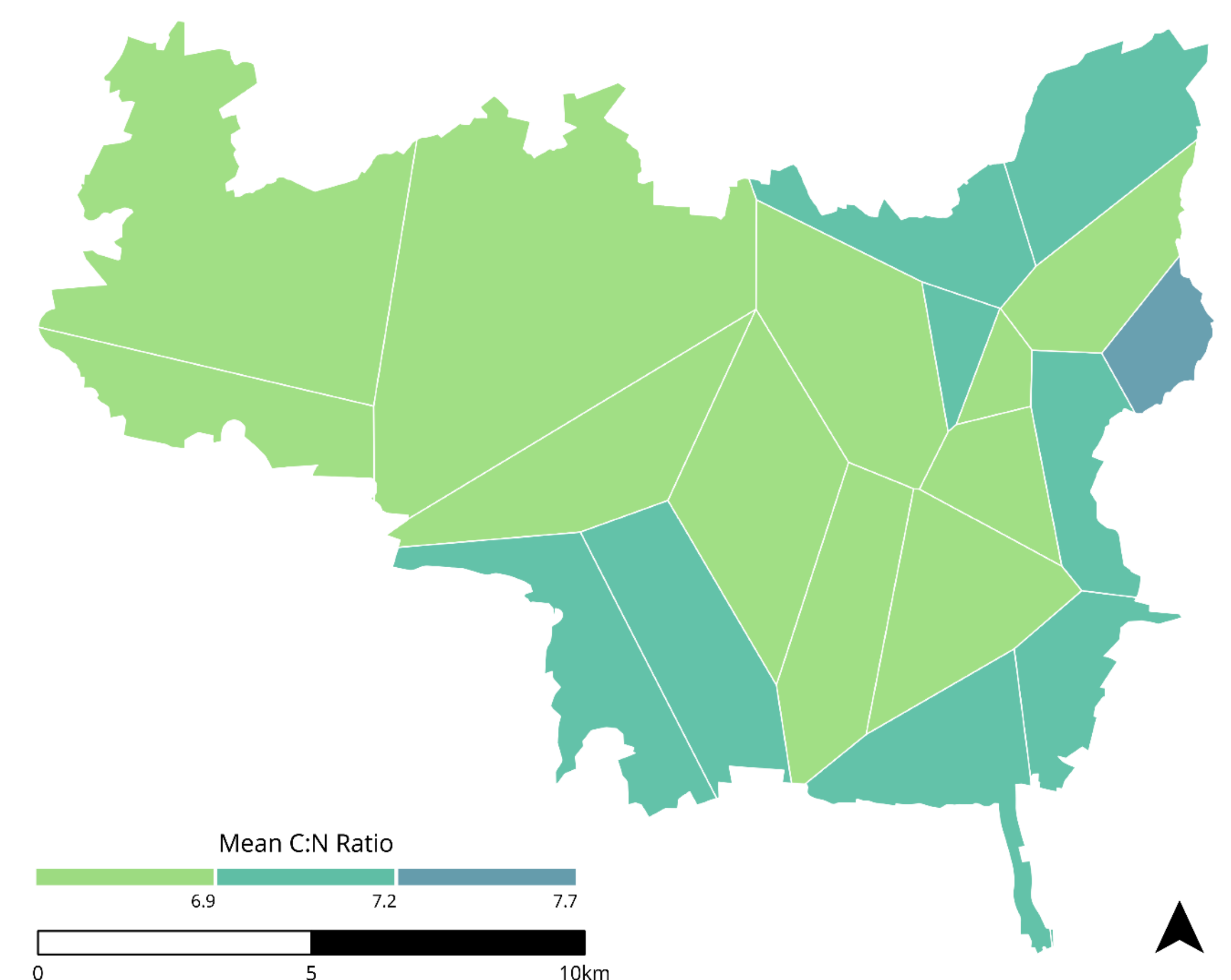
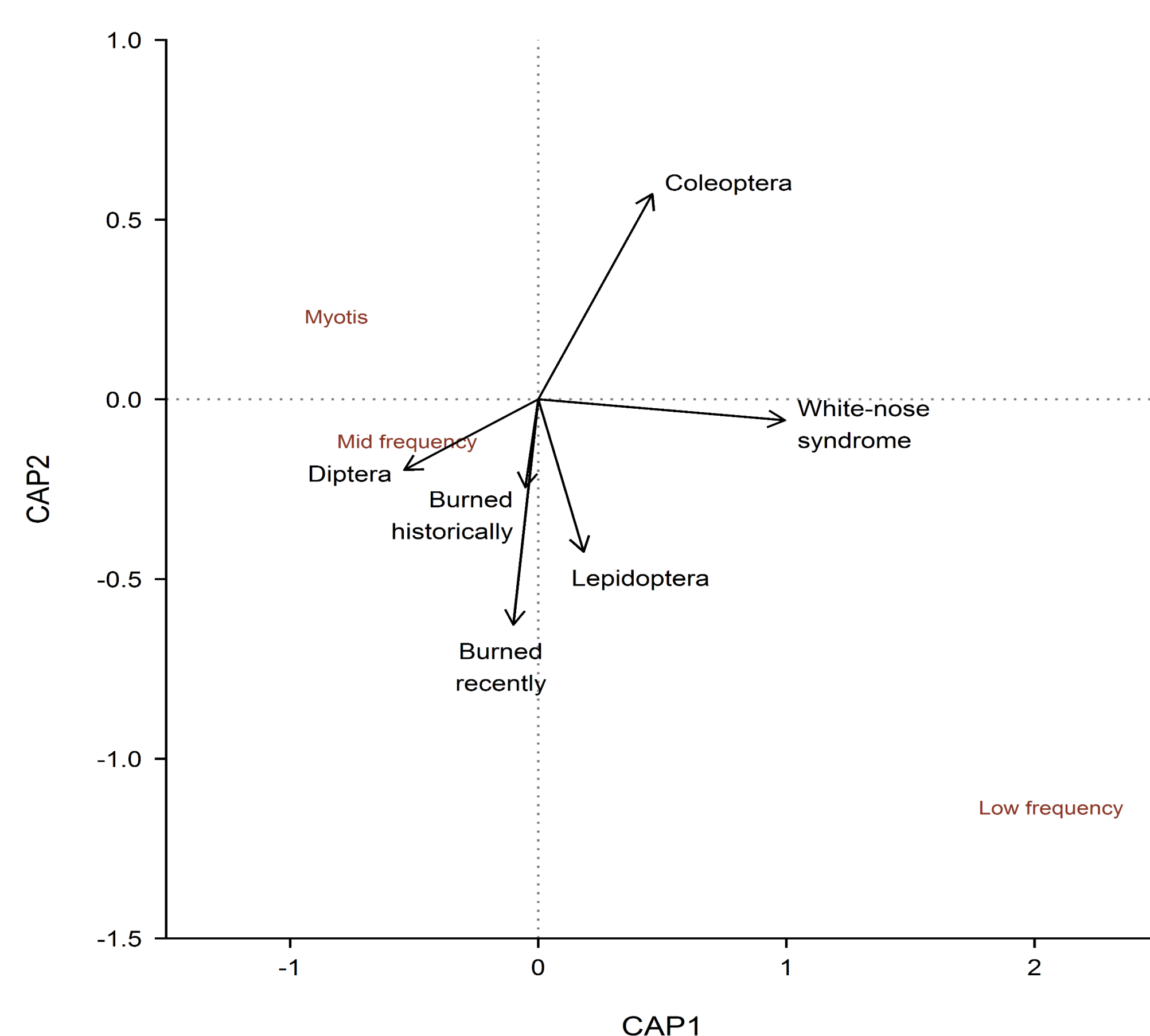


Methods & Base Results



Derived Results & Implications

- Bats resistant to WNS (i.e., low-frequency echolocators) opt for less-cluttered conditions. As such, corridors are increasingly important as foraging habitats for bat communities at Mammoth Cave National Park (and more generally for eastern North America).
- Habitat 'quality' can be measured various ways; our work suggests the spatial dispersion of prey items across Mammoth Cave National Park does not necessarily correspond to the dispersion of nutrients across the landscape. Nutrition is a core concern for bats in the wake of WNS. Our work emphasizes the importance of assessing wildlife impacts beyond simple assessments of presence & abundance.



Map displaying the distribution of mean C:N ratios derived from Coleoptera, Diptera, Hymenoptera, & Lepidoptera captured during light-trapping surveys.

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